

Email Campaign Effectiveness Analysis

X Brand RETAILER CASE

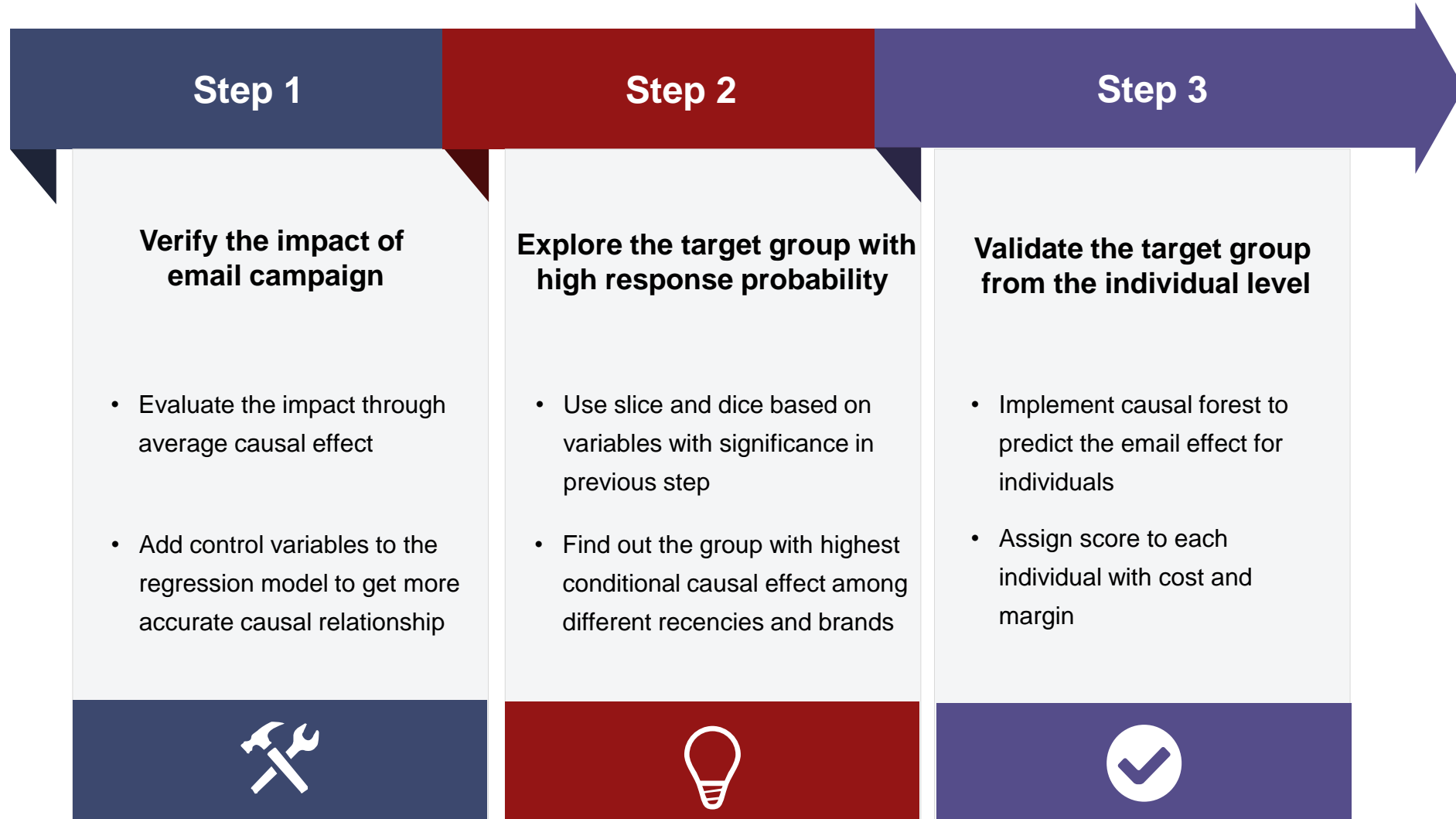


Executive Summary

- ✓ Email campaign does have effective impacts on driving purchases.
- ✓ Those customers bought product C, product S and product B or whose purchase records are within 45 days should be targeted by the email campaign.
- ✓ After taking cost and margin into account, the retailer can target 43,789 customers, which take up 55.9% of total training sample.



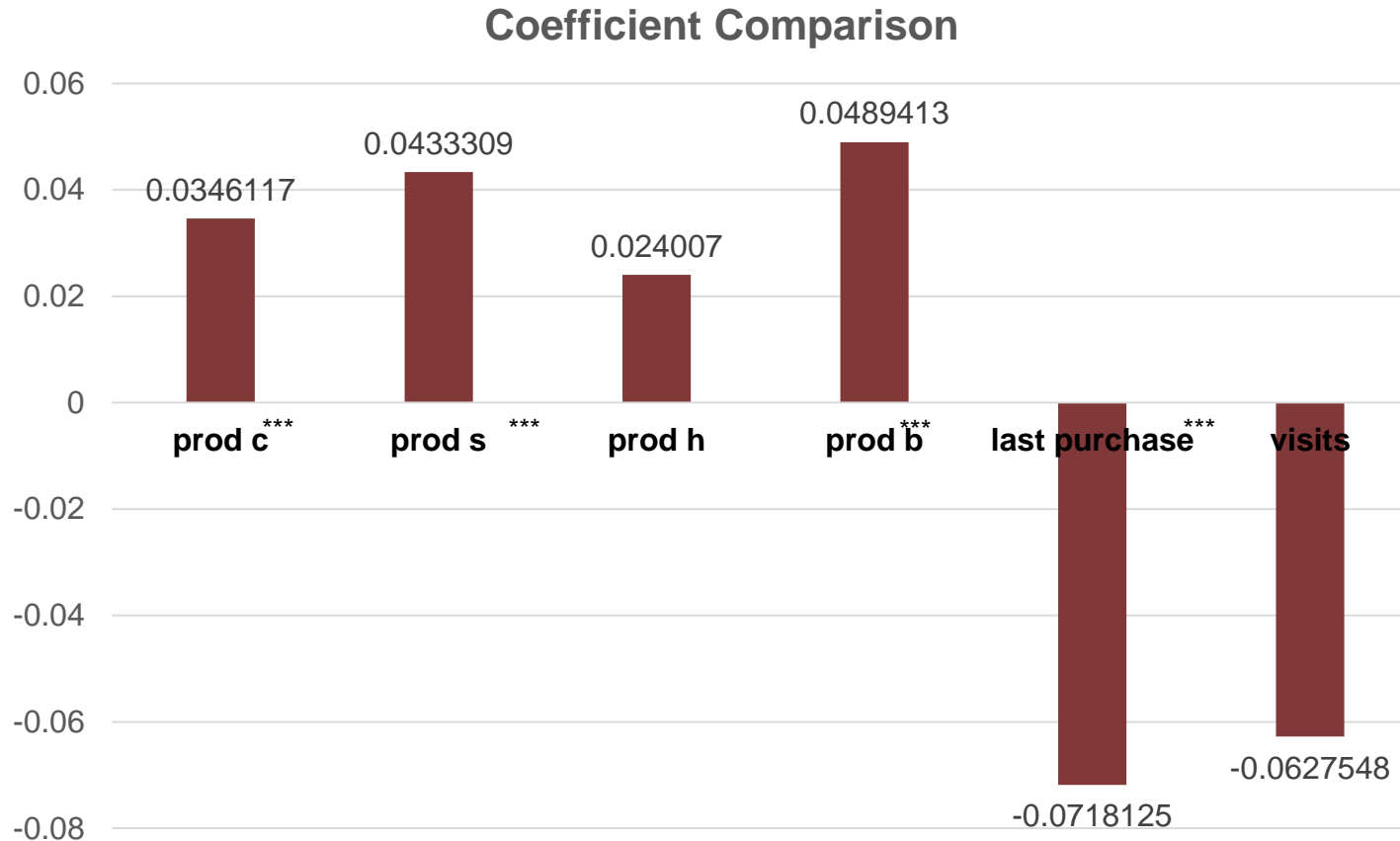
Methodology



Dataset

- user_id : user id
- cpgn_id: campaign id
- group: email/control group
- open: whether receiver opened the email
- click: whether receiver clicked the link
- purch: whether receiver purchased the product
- prod c/s/h/b : purchase amount of these products before
- past_purch: past purchase amount
- last_purch: recency
- visits: time to visit website per month

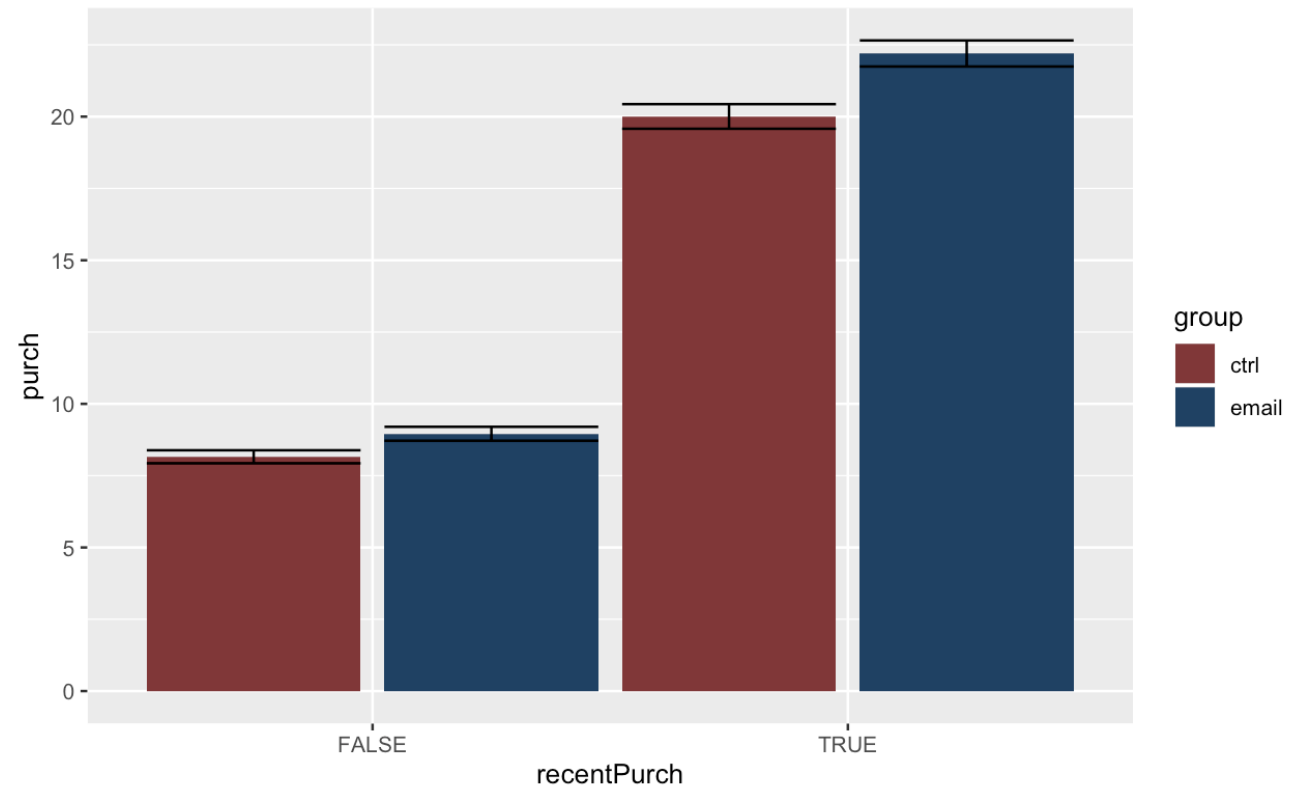
Average Causal Effect



- ✓ Email variable will increase purchase by \$1.35 under average causal effect.
- ✓ After adding baseline variables, Email variable can still increase purchase by \$1.26 under conditional causal effect and variables **product c**, **product s**, **product b** and **last_purchase** show importance to influence purchase .

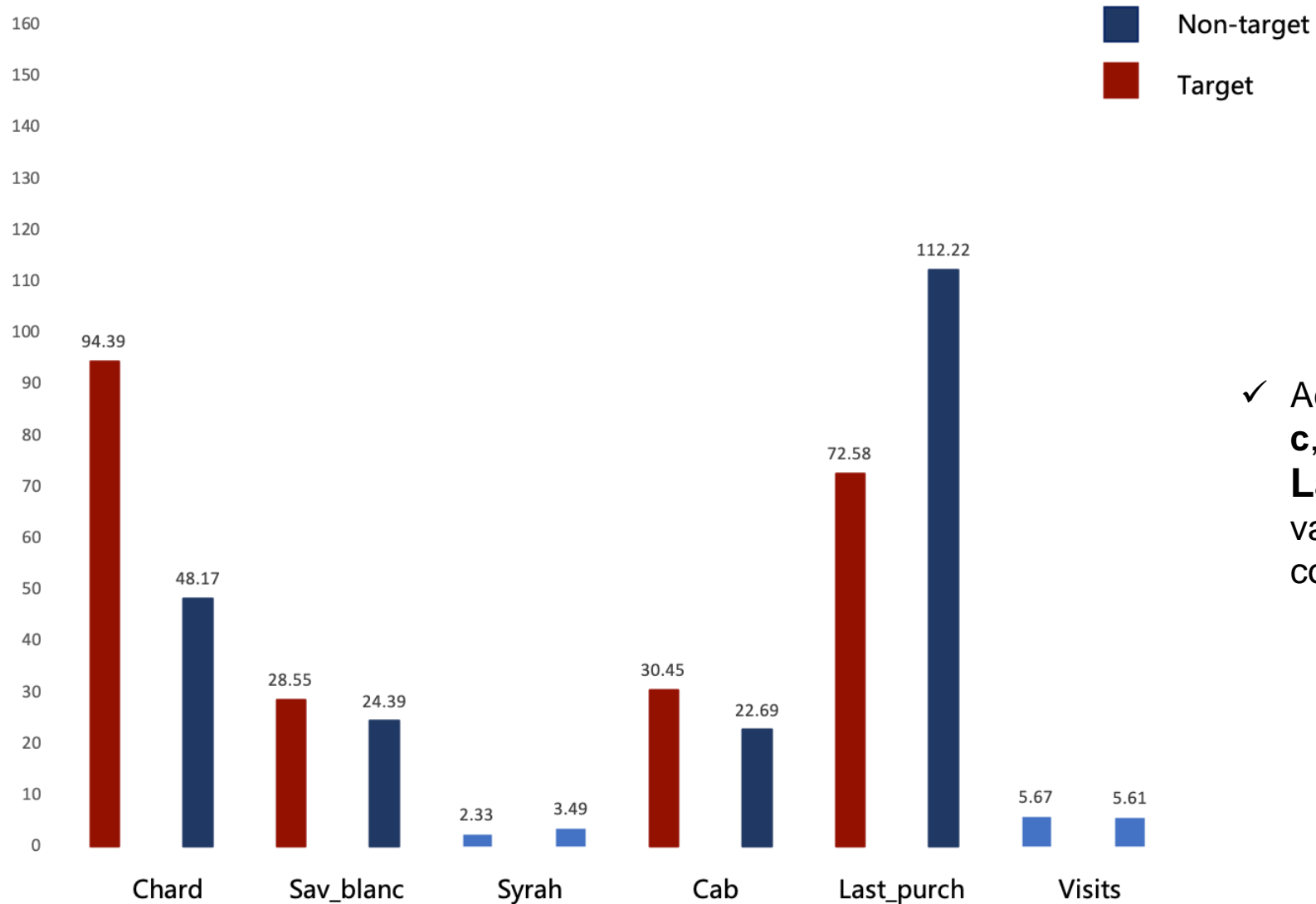
Slice and Dice Example: Recency

Received Email	Recent Purchase False	Recent Purchase True
< 30 days	\$0.99	\$2.19
< 45 days	\$0.8	\$2.19
< 60 days	\$0.90	\$1.73
< 90 days	\$0.60	\$1.79
< 120 days	\$0.18	\$1.74



- ✓ Based on the trial, **45 days** is the best dividing line of whether consumers purchased recently.
- ✓ Email campaign does have **greater impact** on customers who purchased recently.

Individual-level Prediction



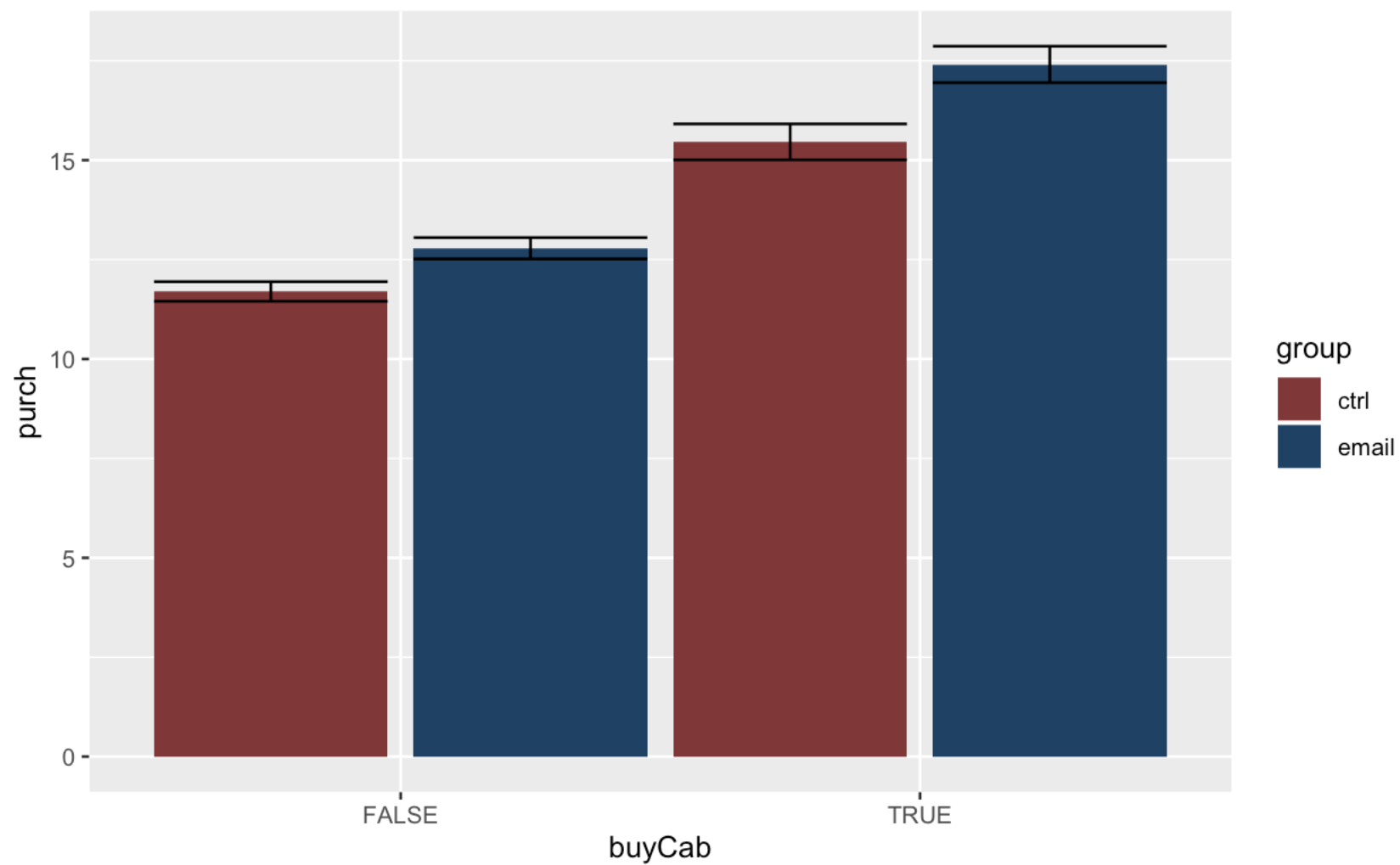
✓ According to causal forests, **product c**, **product s**, **product b** and **Last_purch** have consistent variable importance with previous coefficient comparison.

Appendix — Cost and Margin

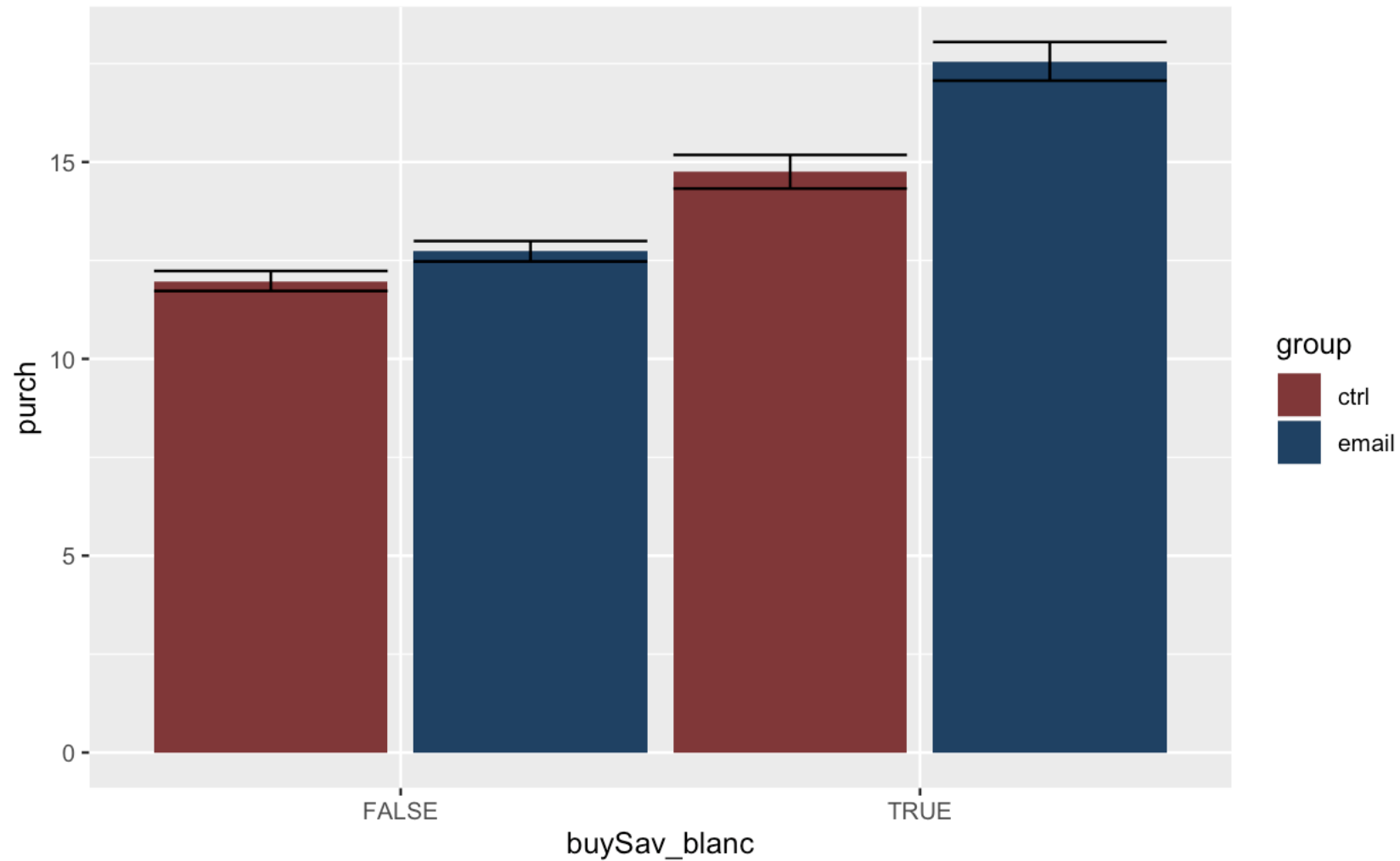
- ✓ Average cost: \$0.1
- ✓ Margin: 30%

```
#Calculate the margin and decide whether to send emails  
predict_form$margin <- predict_form$predictions * 0.3 - 0.1  
predict_form$sent <- predict_form$margin > 0
```

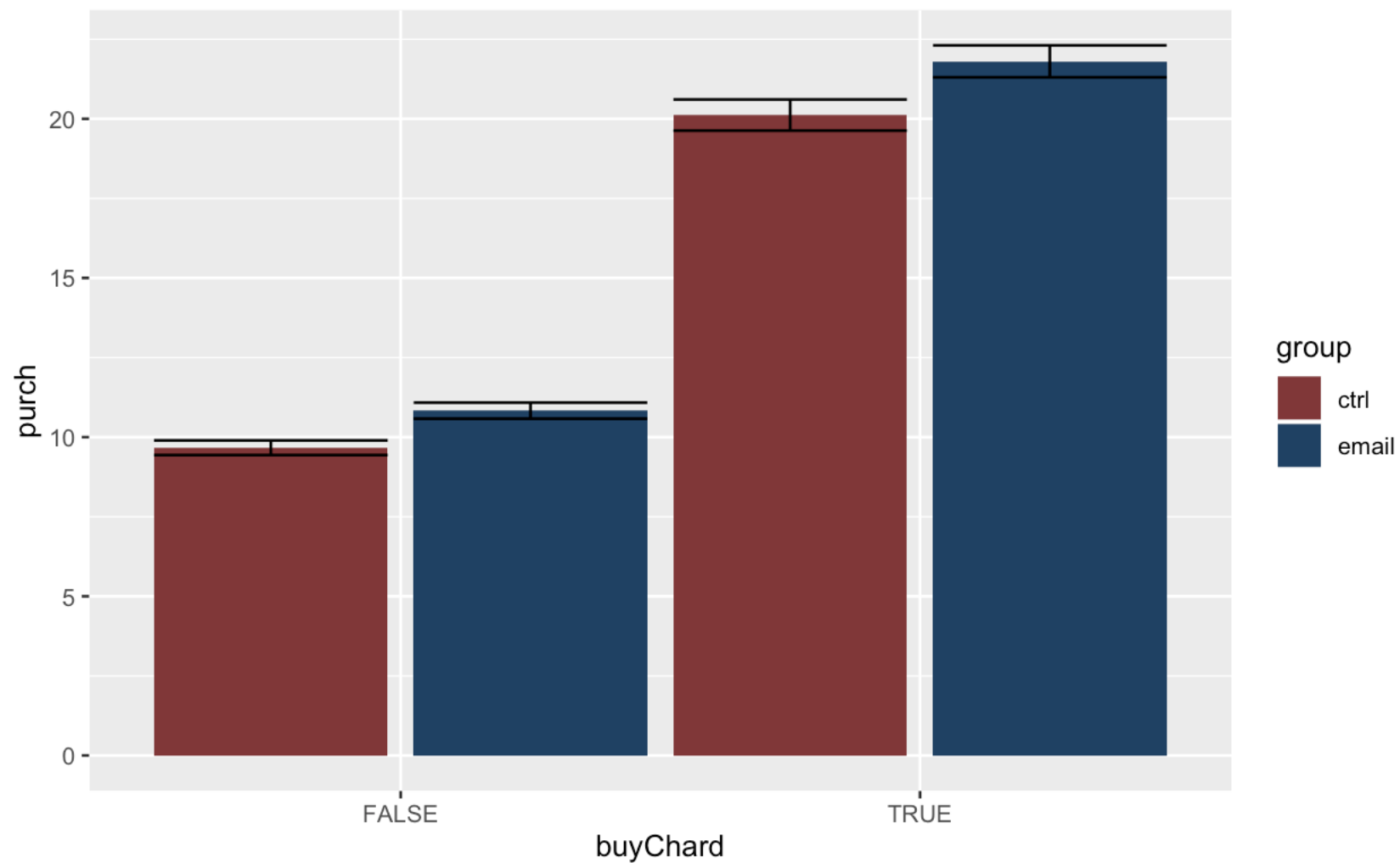

Appendix — Slice and Dice Example: Brand



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